UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
HEALTH AND SAFETY ACTIVITY

District E

# REPORT OF FATAL COAL OUTBURST (BUMP) ACCIDENT
SOMERSET MINE
UNITED STATES STEEL CORPORATION
WESTERN-DISTRICT COAL
SOMERSET, GUNNISON COUNTY, COLORADO

January 11, 1967

By

V. H. Bowling
Federal Coal-Mine Inspector

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## INTRODUCTION

This report is based on an investigation made in accordance with provisions of the Federal Coal Mine Safety Act (66 Stat. 692; 30 U.S.C. Secs. 451-483) as amended.

A coal outburst causing fatal injury to one employee and minor injuries to five others occurred at 8:50 p.m., Wednesday, January 11, 1967, in a cross-cut to the right off room No. 22, 2 west pillar section, C seam, Somerset mine, United States Steel Corporation, Western-District Coal. Four other men in the section were not injured, and they and the slightly injured workmen assisted in recovering the fatally injured man. Multiple injuries to James Brezonick, continuous-miner operator's helper, resulted in his instantaneous death. Robert Kilcrease, section foreman; Louis Fatur, continuous-miner operator; Kenneth Jones, timberman; Kenneth Meredith, roof bolter; and Jerry Burnett, roof bolter, received contusions and bruises, were treated by a doctor, and released. Brezonick (victim), age 25, had 4 years mining experience, all at this mine. He is survived by his widow and two dependent children.

The writer was in Paonia, Colorado, inspecting other mines in the vicinity, and was notified of the accident by Paul Butler, safety engineer, at 10:40 p.m., January 11, 1967. The writer accompanied by Oscar Rice, district State coal-mine inspector, immediately proceeded to the mine to make a preliminary investigation and to assist in restoring ventilation to the area.

## GENERAL INFORMATION

The Somerset mine is operated in the high-volatile B and C coalbeds, which range from 20 to 25 and 5 to 9 feet in thickness, respectively. The C bed overlies the B bed and the two are separated by approximately 80 feet of rock strata. Access to the mine is by five slopes. A total of 171 men, 145 underground and 26 on the surface, was employed on two coal-producing and one maintenance shift a day, 5 days a week. Average daily production of 3,000 tons of coal was mined with three ripper-type continuous-mining machines.

The mine was developed by a room-and-pillar method. Rooms on 80-foot centers were turned off the room entries, driven to depths of approximately 150 feet, and holed through into the previously worked-out room entries. Pillar extraction was obtained by splitting, and mining out fenders left on each side. Main and room entries were driven in sets of three and four. Entries and rooms were 16 feet wide, and crosscuts were 80 feet apart.

Immediate roof in the B seam consists of sandy shale; laminated sandstone, shale, and sandy shale; and 4 feet of sandstone. Immediate roof in the C seam consists of a varying thickness of coal-bearing shale containing pots and slips, and 5 to 10 feet of shale grading into laminated shale and sandstone.

Cover over the 2 west C seam at the scene of the outburst is 1,500 feet.

The adopted timbering plan required permanent props or crossbars to be set not more than 8 feet apart and kept to within 8 feet of the faces. Roof bolts installed in accordance with the recommendations of a Bureau of Mines roof-control representative were used in conjunction with conventional timbering in both the B and C seams. The entire section where the accident occurred was bolted on 4-foot centers or less, and using steel mats. Rows of breaker timbers were used in the pillar sections at entrances to all abandoned areas and at the mouth of caved areas.

Members of the investigating committee were:

Company Officials

Paul Butler, safety engineer
George Dunham, acting general mine foreman
T. R. Self, industrial engineer, Western Division and acting evening shift mine foreman
Arlo Morrow, third shift foreman
Robert L. Rasmusson, mine engineer
John Bon, section foreman 2 east C seam
C. P. Campbell, fire boss

United Mine Workers of America

Roscoe Meredith, safety committeeman
John Colletti, safety committeeman
Bruce Wright, safety committeeman

Colorado State Coal Mine Inspection Department

Oscar Rice, district State mine inspector

United States Bureau of Mines

V. H. Bowling, Federal coal-mine inspector

The preceding Federal inspection was completed December 2, 1966.

## DESCRIPTION OF ACCIDENT

On the day of the outburst, the 2 west C seam evening shift crew, consisting of nine workmen and a section foreman, arrived on the section about 4:30 p.m., and started normal coal-producing operations in a crosscut to the right off No. 22 room. Coal on this section was mined with a ripper-type continuous-mining machine loading into shuttle cars. The miner was equipped with a substantially constructed steel cage over the operator's position.

The 2 west section was retreating toward a fault and had retreated outby a rock spar. Because of a roof fall at some prior date, No. 21 room was not driven to its full depth and the block of coal through which the crosscut was being driven was about 175 feet square. The crosscut had been driven to a depth of about 80 feet. Because of the amount of roof rock coming in as the coal was mined, the section foreman called the acting mine foreman and requested permission to pull out of the crosscut. It was agreed that the miner would be pulled back to a point about 50 feet from the face and that a lift to the left would be started in an attempt to drive through to the old No. 3 entry, 1 west. After the miner was pulled back, 13 props were set in the vacated area, and the lift was started to the left on about a 45-degree angle. A shallow cut was made to permit the bolting crew to bolt the roof and catch up the cap rock. The continuous miner then was removed so that the roof could be bolted. After the roof in the face area was bolted, the bolting machine was parked in the crosscut between No. 23 and No. 22 rooms (directly in front of the crosscut where the lift was bolted). Meredith and Burnett, the roof-bolting crew; Jones, the timberman; and Kilcrease, the section foreman, all were standing at the intersection near the parked roof-bolting machine.

Mining was resumed in the lift neck off the crosscut; the second shuttle car was loaded and the miner was backed away from the face and stopped. Kilcrease saw Brezonick (victim) in a kneeling position, as though tying a shoe lace or picking up something at the side of the cage of the miner. Kilcrease started toward the victim, saying to him, "Jim, stand up, stay on your feet, as this place could explode." The bump occurred at this time and the air was filled with dust. Kilcrease, Burnett, Meredith, and Jones were knocked down, rolled, and hit by flying debris. Louis Fatur, miner operator, was thrown around in the cage of the miner and lost consciousness temporarily. The protective cage is believed to have prevented more serious injury to Fatur. The four men at the intersection, unable to see, struggled to get to fresh air by going toward the shuttle-car ramp. Fatur, in the cage of the miner, struggled to his feet and when he turned could see Brezonick's face at the side of the cage. Kilcrease, by shouting, was able to determine that all his men could be accounted for, except Brezonick (victim).

After instructing Valdez, the electrician, to cut off all power and to telephone for help, Kilcrease and the other workmen returned to the area and located Brezonick (victim) pinned against the cage of the miner by broken coal. Kilcrease administered mouth-to-mouth artificial respiration to no avail. Fatur was helped from the cage of the mining machine through a small opening in the rear of the cage, and assisted to the main-trip station by other workmen. T. R. Self, the evening shift foreman, and several workmen had arrived on the section, and the injured men were sent to the surface while recovery operations proceeded. The body of Brezonick (victim) was freed from the debris and transported to the surface at about 11 p.m., where he was pronounced dead by Dr. D. N. Ridgeway.

The air blast created by the sudden outburst of coal blew out five brattice-cloth stoppings in the immediate area and three metal stoppings 350 to 500 feet outby the area, disrupting ventilation and permitting an explosive mixture of methane to build up in the vicinity of the mining machine.

Preliminary investigation, including restoration of ventilation and removal of methane, was begun about 11:30 p.m., and continued until about 5 a.m., January 12, 1967, when the machinery was removed from the scene.

The investigation revealed that in addition to the blown-out stoppings, the steering device was broken off the roof-bolt machine and a digger-head assembly had been broken off the mining machine, practically all timbers were broken and dislodged, and the 50-foot area from the face of the crosscut to the outby end of the miner was filled completely with loose coal. Coal and debris filled No. 22 room about 4 feet deep from the end of the miner outby to the end of the pillar. The concussion caused by the outburst was felt by workmen approximately 1½ miles away, and considerable disturbance was evident along the 2 west B seam haulageway directly beneath the C seam workings. This area was between the fault and rock spar present in both seams.

The roof was well supported with roof bolts and roof failure did not occur.

Several factors contributed to the coal outburst:

1. Natural conditions were conducive to coal outbursts--up to 1,500 feet of cover, a main roof of thick sandstone, and a hard firm shale floor resistant to pressure.

2. Pillars of unequal dimensions and shapes possessing different load carrying capacities were formed during previous and recent mining. The pillar involved was the largest in the area, approximately 175 feet long and 175 feet wide. It was situated between several other large pillars left from previous mining in the 1 west section, and large blocks of coal left in Nos. 18, 19, and 20 rooms (see sketch).

3. The extraction line was approaching a fault line.

## CAUSE OF ACCIDENT

The opinion of the investigating committee was that the accident resulted from heavy cover and incomplete mining in the 2 west and 1 west sections.

## RECOMMENDATIONS

Compliance with the following recommendations may prevent accidents of a similar nature in the future:

1. Pillars should be extracted as completely as possible and pillar remnants should not be left; when it is impossible to recover remnants safely, they should be destroyed by blasting.

2. Where recovery of pillars is impracticable, pillars of uniform size and shape should be left, so that the stress is distributed uniformly upon all blocks.

## ACKNOWLEDGMENT

The cooperation of company officials, employees and others participating in this investigation is gratefully acknowledged.

Respectfully submitted,

V. H. Bowling

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Federal Coal-Mine Inspector

# SKETCH
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